Page 1 of 7 2 0500 OH 60 OIPE DINT 2-26-8)

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RAW SEQUENCE LISTING

DATE: 11/29/2000

48

PATENT APPLICATION: US/09/711,724

TIME: 13:33:00

Input Set : A:\Hmv00606.app

Output Set: N:\CRF3\11292000\1711724.raw

## SEQUENCE LISTING

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4 (1) GENERAL INFORMATION:
            (i) APPLICANT: Ingham, Phillip W.
                            McMahon, Andrew P.
                            Tabin, Clifford J.
                            Marigo, Valeria
     g
            (ii) TITLE OF INVENTION: SCREENING ASSAYS FOR REDGEGOG AGONISTS
                                     AND ANTAGONISTS
    12
           (iii) NUMBER OF SEQUENCES: 48
    14
            (iv) CORRESPONDENCE ADDRESS:
    16
                  (A) ADDRESSEE: FOLEY, HOAG & ELIOT LLP
    17
                  (B) STREET: One Post Office Square
                  (C) CITY: Boston
     19
                  (D) STATE: MA
     20
                  (E) COUNTRY: USA
     21
                  (F) ZIP: 02109-2170
     22
             (V) COMPUTER READABLE FORM:
     24
                  (A) MEDIUM TYPE: Floppy disk
                  (B) COMPUTER: IBM PC compatible
                  (C) OPERATING SYSTEM: PC-DOS/MS-DOS
                  (D) SOFTWARE: PatentIn Release #1.0, Version #1.30
     28
            (vi) CURRENT APPLICATION DATA:
     3.0
                  (A) APPLICATION NUMBER: US/09/711,724
C--> 31
                  (B) FILING DATE: 13-Nov-2000
C--> 32
                  (C) CLASSIFICATION:
           (vii) PRIOR APPLICATION DATA:
     35
                  (A) APPLICATION NUMBER: US 08/460,900
     36
                  (B) FILING DATE: 05-JUN-1995
     37
          (viii) ATTORNEY/AGENT INFORMATION:
                  (A) NAME: Vincent, Matthew P.
     40
                  (B) REGISTRATION NUMBER: 36,709
     41
                  (C) REFERENCE/DOCKET NUMBER: HMV-006.06
     42
            (ix) TELECOMMUNICATION INFORMATION:
     44
                   (A) TELEPHONE: 617-832-1000
     4.5
                  (B) TELEFAX: 617-832-7000
     46
        (2) INFORMATION FOR SEQ ID NO: 1:
             (i) SEQUENCE CHARACTERISTICS:
     5.1
                  (A) LENGTH: 1277 base pairs
     52
                   (B) TYPE: nucleic acid
     53
                   (C) STRANDEDNESS: both
     54
                   (D) TOPOLOGY: linear
            (ii) MOLECULE TYPE: CDNA
     60
             (ix) FEATURE:
                   (A) NAME/KEY: CDS
     6.1
                   (B) LOCATION: 1..1275
     62
             (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 1:
     67 ATG GTC GAA ATG CTG CTG TTG ACA AGA ATT CTC TTG GTG GGC TTC ATC
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RAW SEQUENCE LISTING DATE: 11/29/2000 PATENT APPLICATION: US/09/711,724 TIME: 13:33:00

Input Set : A:\Hmv00606.app
Output Set: N:\CRF3\11292000\I711724.raw

68 Met Val Glu	Met. Leu	Leu Le	ou Thr	Arg Il	e Leu	Leu	Val G	ly Ph	e Ile	6
	5			1	. U					
	TTA GTC	TCC TC	CT GGG	CIG AC	T TGT	GGA	CCA G	iGC AG	G (31)	•
71 TGC GCT CTT 72 Cys Ala Leu	Leu Val	Ser Se	er Gly	Leu Ti	m Cys	G.L.Y	Pro G	30 TA VI.	d GT	Y
	20			2.3				50		
73 75 ATI GGA AAA	ACG AGG	CAC C	CC AAA	AAG CI	C ACC	CLU	LOU	la Tv	r T.v	4
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77 35		ama 0	40 GA CAC	AAC A	c cra	GGG		AGT GG	A AC	A 192
77 35 79 CAG TTT ATT 80 Gln Phe Ile	CCC AAT	GTG G	LA GAG	Ive Ti	nr Len	Gly	Ala S	ser Gl	y Ar	·g
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81 50 83 TAT GAA GGG	220 220	7C7 A	CD AAC	TCC G	AG AGA	TTT	AAA (	GAA CT	'A AC	C 240
83 TAT GAA GGG 84 Tyr Glu Gly	AAG AIC	Thr A	ra Asi	ser G	lu Arq	Phe	Lys (	Glu Le	au Th	ır
		70			13				•	
85 65 87 CCA AAT TAC	AAC CCT	CAC A	TT ATT	TTT A	AG GAT	GΛA	GAG A	AAC AC	CG GG	A 288
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	CONC. ACC	ACT C	AG CGC	: TGC A	AG GAC	AAG	CTG .	AAF GC	CC CI	rG 336
91 GCT GAC AGE 92 Ala Asp Arg	Leu Met	Thr G	ln Arg	g Cys L	ys Asp	Lys	Leu	non and	la L€	311
	200			105				TT0		
	GTG ATC	AAC C	AG TG	G CCC G	GG GTG	AAG	CTG	CGG G:	IG AC	_C 304
96 Ala Ile Se	c Val. Met	Asn (	da Tr	b bro e	ly Val	ГÃ2	Desti	Arg va	d.1 .1.1	III.
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97 11: 99 GAG GGC TG	G GAC GAC	GAT (	GC CA	r CAC T	CC GAG	GAA	TUG H CAN	CIG C	His	
100 Glu Gly T	rp Asp Gl	u Asp	GIV H	1S HIS	ser Gr	u 61.	u 261	1200	112.5	- / -
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101 130			135			J. 44	v			
	00 000 0	BC CAC	1.35 ATC A	CC ACG	TCG GA	T CG	G GAC	CGC	AGC :	AAG 480
103 GAG GGT C 104 Glu Gly A	00 000 0	rg GAC al Asp	1.35 ATC A	CC ACG	TCG GA Ser As	T CG	G GAC	CGC	AGC :	AAG 480
103 GAG GGT C 104 Glu Gly A 105 145	GC GCC GC rg Ala Va	rg GAC al Asp 150	ATC A	CC ACG	TCG GA Ser As 15	T CG p Ar 55 CC GG	G GAC g Asp	CGC Arg	AGC : Ser : TGG	AAG 480 Lys 160 GTC 528
103 GAG GGT C 104 Glu Gly A 105 145	GC GCC GC rg Ala Va	rg GAC al Asp 150	ATC A	CC ACG	TCG GA Ser As 15	T CG p Ar 55 CC GG	G GAC g Asp	CGC Arg	AGC : Ser : TGG	AAG 480 Lys 160 GTC 528
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M	GC GCC GC rg Ala Va TG CTG GO et Leu A	rg GAC al Asp 150 cc cgc la Arg	ATC ATT THE TOTAL CTC G	CC ACG hr Thr CC GTC la Val	TCG GA Ser As 15 GAG GC Glu Al	T CG Sp Ar S5 CC GG .a G1	G GAC g Asp C TTC y Phe	CGC Arg	AGC Ser TGG Trp 175	AAG 480 Lys 160 GTC 528 Val
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M	GC GCC GS rg Ala Va TG CTG GG et Leu A	rg GAC al Asp 150 cc cgc la Arg	ATC	CC ACG hr Thr CC GTC la Val	TCG GA Ser As 15 GAG GC Glu Al 170	T CG Sp Ar S5 CC GG A GL	G GAC G ASP G TTC Y Phe	C CGC Arg	AGC Ser TGG Trp 175 GAA	AAG 480 Lys 160 GTC 528 Val
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M	GC GCC GS rg Ala Va TG CTG GG et Leu A	rg GAC al Asp 150 cc cgc la Arg	ATC	CC ACG hr Thr CC GTC la Val	TCG GA Ser As 15 GAG GC Glu Al 170	T CG Sp Ar S5 CC GG A GL	G GAC G ASP G TTC Y Phe	C CGC Arg C GAC Asp A GCA Ala	AGC Ser TGG Trp 175 GAA	AAG 480 Lys 160 GTC 528 Val
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G	GC GCC GT rg Ala Va TG CTG GG et Leu A. la AG TCC A. lu Ser L	rg GAC al Asp 150 cc cgc la Arg 65 AG GCG ys Ala	TIE TO CTC G Leu A CAC A His I	CC ACG hr Thr CC GTC la Val TC CAC le His	TCG GA Ser As 15 GAG GC Glu Al 170 TGC TC Cys Se	T CG p Ar 55 c GG a GI	G GAC G Asp G TTC Y Phe	C CGC Arg C GAC E Asp A GCA E Ala 190	AGC Ser TGG Trp 175 GAA Glu	AAG 480 Lys 160 GTC 528 Val AAC 576 Asn
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G	GC GCC GC rg Ala Va TG CTG G et Leu A AG TCC A lu Ser L 180	rg GAC al Asp 150 CC CGC la Arg 65 AG GCG AG GCG	TIE TO CTC G Leu A CAC A His I	CC ACG hr Thr CC GTC la Val TC CAC le His 185	TCG GAS SET AS 15 GAG GCU AL 170 TGC TCC CYS SE	T CG P Ar C GG A GL C GG A GL C GT C GG	G GAC Eg Asp EC TTC Y Phe EC AAA Il Lys	C CGC Arg C GAC Asp A GCA Ala 190 A GCC	AGC ASET TGG Trp 175 GAA Glu	AAG 480 Lys 160 GTC 528 Val AAC 576 Asn 624
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G	GC GCC GC rg Ala Va TG CTG G et Leu A AG TCC A lu Ser L 180	rg GAC al Asp 150 CC CGC la Arg 65 AG GCG AG GCG	TIE TO CTC G Leu A CAC A His I	CC ACG hr Thr CC GTC la Val TC CAC le His 185	TCG GAS SET AS 15 GAG GCU AL 170 TGC TCC CYS SE	T CG P Ar C GG A GL C GG A GL C GT C GG	G GAC G GAC G Asp GC TTC AAF AL Lys GC TCA Ly Sei	C CGC Arg C GAC Asp A GCA Ala 190 A GCC r Ala	AGC ASET TGG Trp 175 GAA Glu	AAG 480 Lys 160 GTC 528 Val AAC 576 Asn 624
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A	GC GCC GC rg Ala Va TG CTG GG et Leu A 1 AG TCC A 1u Ser L 180 .CA GCG A	rg GAC al Asp 150 CC CGC la Arg 65 AG GCG ys Ala AA TCA	ATC AGA CAC A His 1	CC ACG hr Thr CC GTC la Val TC CAC le His 185 GC TGC Cly Cys	TCG GASer As 15 GAG GCU AL 170 TGC TCC Sec TTC CC Phe Pr	T CG p Ar 55 CC GG a Gl cc GT cc GT cc GG cc GT	G GAC  G GAC  G Asp  GC TTC  Y Phe  GC AAF  IL Lys  GC TCF  Ly Sei  209	C CGC : Arg C GAC A Asp A GCA A GCA A GCC T Ala	AGC Ser TGG Trp 175 GAA Glu ACA Thr	AAG 480 Lys 160 GTC 528 Val 576 ASD 576 ASD 624 Val
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117	GC GCC GT rg Ala Va TG CTG GG et Leu A. L AG TCC A. lu Ser L 180 CCA GCG A. dla Ala L 95	rg GAC al Asp 150 cc cgc la Arg 65 AG GCG ys Ala AA TCA ys Ser	ATC AIT IT I	CC ACG hr Thr  CC GTC la Val  TC CAC le His 185 GC TGC (ly Cys 000 LAG CTG	TCG GA Ser As 15 GAG GC Glu Al 170 TGC TC Cys Se TTC CC Phe Pr	T CG Sp Ar Sp Ar Sc GG A GL CC GT CC GT CC GT CC GT CC GT	G GAC  G GAC  G Asp  GC TTC  Y Phe  GC AAA  IL Lys  GC TCA  Ly Sei  205  AC CTCA  CC CTCA	C CGC C Arg C GAC C Asp A GCA 190 A GCC T Ala 5	AGC Ser TGG Trp 175 GAA Glu ACA Thr	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn  GTG 624 Val  GGG 672
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117	GC GCC GT rg Ala Va TG CTG GG et Leu A. L AG TCC A. lu Ser L 180 CCA GCG A. dla Ala L 95	rg GAC al Asp 150 cc cgc la Arg 65 AG GCG ys Ala AA TCA ys Ser	ATC AMILE TO CTC GLEU A His I	CC ACG hr Thr  CC GTC la Val  TC CAC le His 185 GC TGC (ly Cys 000 LAG CTG	TCG GA Ser As 15 GAG GC Glu Al 170 TGC TC Cys Se TTC CC Phe Pr	T CG p Ar 5 CC GG a G1 CC GT cr GG ro G1 AG GA AG GA	G GAC  G GAC  G GAC  G ASP  GC TTC  AAA  AIL Lys  GC TCA  Ly Sei  20:  AC CTG  SEP Lei	C CGC C Arg C GAC C Asp A GCA 190 A GCC T Ala 5	AGC Ser TGG Trp 175 GAA Glu ACA Thr	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn  GTG 624 Val  GGG 672
103 GAG GGT CO 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117	GC GCC GC rg Ala Va TG CTG GG et. Leu A. AG TCC A. lu Ser L 180 .CA GCG A. Lla Ala L .95 AG CAT G Elu His G	rg GAC al Asp 150 cc CGC la Arg 65 AG GCG ys Ala AA TCA ys Ser GA GGC Ly Gly	ATC AMILE TO CTC G Leu A His 1 GGA GGY GGY GTY Thr I	CC ACG hr Thr  CC GTC la Val  TC CAC le His 185 GC TGC cly Cys 000 AG CTG Lys Leu	ECG GAS SET AS 15 GAG GC AL AL 170 TGC TC CYS SE TTC CC Phe Pr	T CG p Ar 55 cc GG a G1 cc GT cc GT cc GG cc GG cc GT cc GG cc GT cc GG	G GAC  G GAC  G GAC  G TTC  Y Phe  GC AAP  GL Lys  GC TCA  Lys  GC TCA  Lys  AC CTC  Sp Lei  20:	C CGC C Arg C GAC S Asp A GCA 190 A GCC T AGC C T AGC U Ser	AGC Ser TGG Trp 175 GAA Glu ACA Thr CCT Pro	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn GTG 624 Val GGG 672 G1y
103 GAG GGT CI 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117 119 CAC CTG G 120 His Leu G 121 210	GC GCC GC rg Ala Va TG CTG GG et Leu A.  AG TCC A. lu Ser L 180 .CA GCG A. Ala Ala L 95 .GAG CAT G. GLU His G	FIG GAC AI ASP 150 CC CGC La Arg 65 AG GCG ys Ala AA TCA ys Ser GA GGC Ly Gly	ATC AMILE TO CTC G Leu A His 1 GGA GGLY GACC ATTACLE TO CACC ATTACLE TO CACC ACC ACC ACC ACC ACC ACC ACC ACC A	CC ACG hr Thr  CC GTC la Val  TC CAC le Hiss 185 GC TGC Gly Cys 100 AG CTG AG C	TCG GAS SET AS 15 GAG GC CC GAS SEC CC GAS SEC CC GAS SEC CC GAS SEC G	T CG p Ar c GG c GG c GG c GT c GG c GG c GG c GG	G GAC  G GAC  G GAC  G TTC  Y Phe  GC AAP  GL Lys  GC TCA  Lys  GC TCA  Lys  AC CTC  Sp Lee  20  TG CTG	C CGC C Arg C ARg A GCA A GCC A GCC T A GCC C TAC C TAC	AGC : Ser : TGG Trp 175 GAA Glu ACA Thr CCT Pro	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn GTG 624 Val GGG 672 GLY GAC 720
103 GAG GGT CO 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117	GC GCC GC rg Ala Va TG CTG GG et Leu A.  AG TCC A. lu Ser L 180 .CA GCG A. Ala Ala L 95 .GAG CAT G. GLU His G	TG GAC All Asp 150 CC CGC La Arg 65 AG GCG 78 Ala AA TCA 78 Ser GA GGC Ly Gly CCT GCT Lia Ala	ATC AMILE TO THE TOTAL AMILE TO	CC ACG hr Thr  CC GTC la Val  TC CAC le Hiss 185 GC TGC Gly Cys 100 AG CTG AG C	TCG GAS Ser As 15 GAG GC TCC CYS Se TTC CCC Phe Pr GTG AV Val Ly GGC CCGly A.	THE CONTROL OF THE CO	G GAC  G GAC  G GAC  G TTC  Y Phe  GC AAP  GL Lys  GC TCA  Lys  GC TCA  Lys  AC CTC  Sp Lee  20  TG CTG	C CGC C Arg C ARg A GCA A GCC A GCC T A GCC C TAC C TAC	AGC : Ser : TGG Trp 175 GAA Glu ACA Thr CCT Pro	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn GTG 624 Val GGG 672 GLY GAC 720
103 GAG GGT C 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117 119 CAC CTG G 120 His Leu G 121 210 123 GAC CGC G	GC GCC GT rg Ala Va TG CTG GG et Leu A L AG TCC A lu Ser L 180 CA GCG A cla Ala L 95 AG CAT G CH GCG CTG	TG GAC  al Asp 150 CC CGC la Arg 65 AG GCG YS Ala AA TCA YS Ser GA GGC Ly Gly CT GCT Lla Ala	TIS ATC A TILE TO THE	CC ACG hr Thr  CC GTC la Val  TC CAC le His 185 GC TGC ily Cys 000 GCG GAC Ala Asp	ECG GAS Ser As 15 GAG GC Glu Al 170 TGC TC Cys Sc TTC CC Phe Pr GTG AV Val Ly GGC CC G1y A	T CG p Ar c5 C GG a G1 C GT c7 C GG c8 C GT c9 C GG c7	G GAC  G GAC  G GAC  G AAP  C AAP  C AAP  C C AAP  C C CC  AC CC  C CC	C CGC C Arg	AGC Ser TGG Trp 175 GAA Glu ACA Thr CCT Pro AGT Ser	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn  GTG 624 Val  GGG 672 Gly  GAC 720 Asp 240
103 GAG GGT CI 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117 119 CAC CTG G 120 His Leu G 121 210 123 GAC CGC C 124 Asp Arg A	GC GCC GT rg Ala Va TG CTG GG et Leu A. LAG TCC A. lu Ser L 180 CCA GCG A cla Ala L 95 GAG CAT G GTG CTG G Val Lou A	TG GAC al Asp 150 cc CGC la Arg 65 AG GCG ys Ala AA TCA ys Ser GA GGC ly Gly CT GCT la Ala 230	THE TOTAL ACT	CC ACG hr Thr  CC GTC la Val  TC CAC le His 185 GC TGC lly Cys 00 AAG CTG Lys Leu GCG GAC Ala Asp	ECG GAS SET AS 15 GAG GC CC GC GC CC GC AGC CC GC AGC AGC	THE CONTROL OF THE CO	G GAC G ASP G TTC Y Phe C AAA I Lys GC TCA Ly Sei 20: AC CTC Sp Lei 20 TTC TTC TTC TTC TTC TTC TTC TTC TTC TT	C CGC C Arg	AGC . Ser TGG Trp 175 GAA Glu ACA Thr CCT Pro AGT Ser TTC	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn  GTG 624 Val  GGG 672 Gly  GAC 720 ASP 240 TAC 768
103 GAG GGT CI 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117	GC GCC GT rg Ala Va rg Ala Va TG CTG GG et Leu A AG TCC A lu Ser L 180 AG GCG A Ala Ala L 95 AGG CAT G Glu His G ATG CTG G Val Lou A ACC TTC C Ehr Phe I	TG GAC  ASP  150  CC CGC  1a Arg  6A GCG  AA TCA  YS SET  GA GGC  1y Gly  CT GCT  Ala Ala  230  CTC GAC  ASE	ATC ACT ACT ACT ACT ACT ACT ACT ACT ACT	CC ACG hr Thr  CC GTC la Val  TC CAC le His 185 GC TGC GLY GVS AG CTG Lys Leu GCG GAC ALA ASP ATG GAC Met ASP	ECG GAS Ser As 15 GAG GC CC GLy A. Ly GGC CC GLy A. A. C.	T CG GP AC G	G GACGY Asp GC TTC Y Phe TC AAF il Lys GC TCF Ly Set 20: AC CTC Sep Let 20: TG CTC EU Let 20: AC CTC GC TCF GC TCF Ly Set 20: AC CTC GC TCF Ly Set 20: AC CTC GC TCF Ly Set 20: AC CTC GC TCF GC TCF G	C CGC : Arg C GAC Asp A GCA A Ala 190 A GCC T Ala 5 T AGC U Ser C TAC U Tyr G CTC S Leu	AGC Ser TGG Trp 175 GAA Glu ACA Thr CCT Pro AGT TTC Phe 255	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn GTG 624 Val  GGG 672 GLy CAC 720 Asp 240 TAC 768 Tyr
103 GAG GGT CI 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117	GC GCC GT rg Ala Va rg Ala Va TG CTG GG et Leu A AG TCC A lu Ser L 180 AG GCG A Ala Ala L 95 AGG CAT G Glu His G ATG CTG G Val Lou A ACC TTC C Ehr Phe I	TG GAC  ASP  150  CC CGC  1a Arg  6A GCG  AA TCA  YS SET  GA GGC  1y Gly  CT GCT  Ala Ala  230  CTC GAC  ASE	ATC ACT ACT ACT ACT ACT ACT ACT ACT ACT	CC ACG hr Thr  CC GTC la Val  TC CAC le His 185 GC TGC GLY GVS AG CTG Lys Leu GCG GAC ALA ASP ATG GAC Met ASP	ECG GAS Ser As 15 GAG GC CC GLy A. Ly GGC CC GLy A. A. C.	T CG GP AC G	G GACGY Asp GC TTC Y Phe TC AAF il Lys GC TCF Ly Set 20: AC CTC Sep Let 20: TG CTC EU Let 20: AC CTC GC TCF GC TCF Ly Set 20: AC CTC GC TCF Ly Set 20: AC CTC GC TCF Ly Set 20: AC CTC GC TCF GC TCF G	C CGC : Arg C GAC Asp A GCA A Ala 190 A GCC T Ala 5 T AGC U Ser C TAC U Tyr G CTC S Leu	AGC Ser TGG Trp 175 GAA Glu ACA Thr CCT Pro AGT TTC Phe 255	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn GTG 624 Val  GGG 672 GLy CAC 720 Asp 240 TAC 768 Tyr
103 GAG GGT CI 104 Glu Gly A 105 145 107 TAC GGA A 108 Tyr Gly M 109 111 TAC TAC G 112 Tyr Tyr G 113 115 TCA GTG G 116 Ser Val A 117 1 119 CAC CTG G 120 His Leu G 121 210 123 GAC CGC C 124 ASP Arg N 125 225 127 TTC CTC A 128 Phe Leu G	GC GCC GT rg Ala Va TG CTG GG et Leu A lu Ser L 180 CA GCG A la Ala L 95 AGG CAT G GH GEG GTG CTG G AGG CTG C	TO GAC All Asp 150 CC CGC La Arg 6AG GCG YS Ala AA TCA YS SET GA GGC LY GLY CCT GCT Ala Ala 230 CCT GAC Reu Asp	ATC ACT ACT ACT ACT ACT ACT ACT ACT ACT	CC ACG hr Thr  CC GTC la Val  TC CAC le His 185 GC TGC cly Cys 000 AG CTG AG ASP ATG GAC Met Asp	TCG GA Ser As 15 GAG GC Glu Al 170 TGC TC Cys Se TTC CC Phe Pr GTG AV Val Ly GGC CG G1y AL Ser St 250 CGG CC	T GG C C C C C T GG C C C C C C C C C C	G GAC  G GAC  G GAC  G TTC  Y Phe  C AAA  I Lys  GC TCA  Ly Sei  20:  AC CTC  ED Lei  20:  AC CTC  ED Lei  CC  GA AAC  GC  GA AAC  GG  GA AAC  TG  GA  TA  CTT  TA  CT	C CGC : Arg C GAC Asp A GCA A Ala 190 A GCC A Ala 5 A AGC T AGC U Ser C TAC U Tyr G CTC S Leu G ACG	AGC Ser TGG Trp 175 GAA Glu ACA Thr CCT Pro AGT TTC Phe 255 GCG	AAG 480 Lys 160 GTC 528 Val  AAC 576 Asn  GTG 624 Val  GGG 672 GLy  GAC 720 Asp 240 TAC 768 Tyr  GCC 816

DATE: 11/29/2000 TIME: 13:33:00 RAW SEQUENCE LISTING PATENT APPLICATION: US/09/711,724

Input Set : A:\Hmv00606.app
Output Set: N:\CRF3\11292000\I711724.raw

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133				260					265	_		maa	0.40		አ C እ	ccc	864
135	CAC	CTG	CTC	TTT	GTG	GCC	CCC	CAG	CAC	AAC	CAG	TCG	CAU	A I a	Thr	Glv	
136	Hi.s	Leu	Leu	Phe	Val	Ala	Pro	G J.II	His	ASI	GLII	261	285	11.1.4	1111	G.E. I	
																	912
139	TCC	ACC	AGT	GGC	CAG	GCG	CTC	TTC	GCC	AGC	AAC	OTO	Luc	Pro	GLV	Gln	
140	ser	Thr	ser	Gly	Gln	Ala	Leu	Phe	Ala	Ser	ASH	300	Liga	110	021		
141.		290					295	000	000	CAC	CAG		CTG	CCG	GCG	TCT	960
143	CGT	GTC	TAT	GTG	CTG	GGC	GAG	GGC	Clu	CAG	CAG Cln	Len	Len	Pro	Ala	Ser	
		Val	4, À L	Val.	Leu	GLY	GLU	СТА	GIÀ	(11.11	315	1,00				320	
145	305				TCA	310	ccc	CAC	CAC	aca	TCC	GGA	GCC	TAC	GCC	CCA	1008
147	GTC	CAC	AGC	GTC	Ser	TTG	Clara	Clu	Glu	Ala	Ser	G1.7	Ala	Tyr	Ala	P.ro	
	Va.l	His	ser	Val	ser	ren	Arg	G 1. u	G.L u	330	00.	,			335		
149					325 GGC	D.C.C	አምሮ	CTC	ATC	AAC	CGG	GTG	TTG	GCC	TCC	TGC	1.056
151	CTC	ACC	GCC	CAG	Gly	The	TIO	Tau	Tle	Asn	Arg	Val	Leu	Ala	Ser	Cys	
				2 4 0					445					., ., .,			
153		000	che	340	CAG	CAC	CAC	AGT	TGG	GCC	CAT	TGG	GCC	TTC	GCA	CCA	1104
155	TAC	GCC	U1C	1110	GAO	GAU	His	Ser	Trp	Ala	His	Trp	Ala	Phe	Ala	Pro	
157		ccc	en on c	CCT	CAG	GGG	CTG	CTG	GCC	GCC	CTC	TGC	CCA	GAT	GGG	GCC Ala	1152
109	DLO	CGC	1 00	λla	Gla	Glv	Leu	Leu	Ala	Ala	Leu	Cys	Pro	Asp	G 3. y	Ala	
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1.0.1	A TO C	(1.03.03		GCC	GCC	ACC	ACC	ACC	ACT	GGC	ATC	CAT	TGG	TAC	TCZ	CGG	1.200
1.00	Tla	Dro	Thr	· Ala	Ala	Thr	Thr	Thr	Thr	Gly	Ile	His	Trp	Tyr	. Sei		
						200					222						1040
			TAC	: cgc	: ATC	GGC	AGC	TGG	GTG	CTG	GA'I	GGT	GAC	GCG	CTO	CAT His	1248
169	TAU	Let	Tyt	Arc	1.16	Cly	ser	Trp	va.l	Lev	ı Asp	Gl;	/ Asp	Ala	Let		
160	1				405	,				41	)				415	)	1277
171	CCC	CTO	GGC	: ATC	GTC	GCE	CCC	GCC	AGC	TG							12//
172	Pro	Leu	Gly	/ Met	. Val	Ala	Pro	) Alā	Sei	:							
171	}			420	)				42:	5							
1.7€	(2)	TNE	ORMA	ATIO	1 FOI	SE(	) ID	NO:	2:								
178		(:	i ) SI	EOUE	ACE (	CHAR	ACTE	RIST	LCS:								
179	}			(A)	LENG	PH:	1190	hase	e pa:	Lrs							
180	)			(B) :	TYPE	nu	clei	c ac:	ı.d								
1.81	l			(C)	STRAI	ADED	NESS	: 511	igi.e								
18	2			(D)	T()PO	LOGY	: 11:	near									
18	4				ULE '	FYPE	: CD	NA									
18	7	( i.:	x) F	EATU	RE:	(12.51.17	. an	c									
18				(A)	NAME	A K EE E	; CD	3 118	Ω								
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19	2	(X	1) S	EQUE	NCE	DESC	an Can Kitet	COM.	a cc	C CT	G TG	C TG	C TT	G GC	A CI	C TTG	48,
19	4 AT	G GC	T CT	G ()	G 66	, AU	r Ta	u TA	n Pr	o Le	u Cv	s Cv	s Le	u Al	a Le	u Leu .5	
19		1	7 TO	m cc	C C 2	CAC	с тс	c gg	G CC	G GG	C CG	A GG	A CC	G GT	T GO	C CGG	96
19	8 GC	A CT	A IC	ומים.	a 61	n Se	r Cv	s Gl	y Pr	o G1	y Ar	g Gl	y Pr	o Va	1 G1	y Arç	ı
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20	0 CC	c cc	ah ana	∠ 17. G⊓	ig de	C AA	G CA	A CT	T GT	G CC	T CT	G CI	A TA	C AA	G CA	G TTT	1.44
20	2 00	0 00		,, ,,													

RAW SEQUENCE LISTING PATENT APPLICATION: US/09/711,724

DAIE: 11/29/2000 TIME: 13:33:00

Input Set : A:\Hmv00606.app
Output Set: N:\CRF3\11292000\1711724.raw

				-	Jul 5						,							
0.03	1	D ra	Tur	Val	Arg	LVS	Gln	Leu	Val	pro	Leu	Leu	Tyr	Lys	s G	1n	Phe	
																		1.92
204	GTG	ccc	AGT	ArG	CCC	GAG	CGG	ACC	CTG	GGC	GCG	AGT	GGG	CCZ	A (	175	Clu	1.52
207	Val	Pro	ser	Met	Pro	Glu	Arg	Thr	Leu	Gly	Ala	001.	CIA	PIC	) E	/Ta	U.I II	
																		240
210	GGG	AGG	$G$ $\Gamma A$	ACA	AGG	GGG	TÇĞ	GAG	CGC	TTC	CGG	CAC	100	Va	1 1	ro	Asn	
211	Gly	Arg	٧al	Thr	Ang	GTA	ser	Glu	Arg	Pne	75	ASP	r.e u	,			80	
																		288
214	TAC	AAC	CCC	GAC	ATA	AIC	TTC	AAG	Tan	Clu	Clu	Asn	Ser	Gl	y 4	Ala	Asp	
215	Tyr	Asn	Pro	Asp	He	TTe	Phe	Lys	ASP	90	OIU	11.511			_	95	-	
216					85 GAG	aam	no c	7 4 7	CAC	CGG	GTG	AAC	GCT	CT	A	GCC	ATC	336
218	CGC	CTG	AT'G	ACA	GAG	CGT	CHO	Luc	Glu	Ara	Val.	Asu	Ala	Le	u .	Ala	11e	
220				100	3 71/2	TCC	ccc	GGA	CT.V	CGC	CTA	CGT	GTG	, AC	T	GAA	GGC	384
222	GCG	GTG	ATG	AAC	Met	TOG	Pro	Glv	Val	Arq	Leu	Arg	Val	Th	ır.	Glu	Gly	
224		0.10	115		GGC	CAC	CAC	CCA	CAG	GAT	TCA	CTO	CAC	T7	AC.	CAA	GGC	432
226	TGG	GAC	. GAG	) OHC	GGC Gly	His	His	Ala	Gln	Asp	Ser	Leu	Hi.s	5 Ty	r	Glu	GLY	
																		400
228	aar	130		CAC	C ATC	ACC	100	TCT	GAC	CGT	GAC	CGT	' AA'	r A	٦G	TAT	GGT	480
230	CGT	315	To	ı Agı	o Ile	Thr	Thr	Ser	Asp	Arg	Asp	Arc	j Asi	n Lly	/S	Tyr	GLY	
																		528
			a acc	: CGC	C CTA	COT	CTC	GAA	GCC	GGP	TT(	GAG	C TG	G G	rc	TAC	TAC	326
234	110	T.631	ı Alz	a Are	g Leu	Ala	Val	Glu	Ala	G 3.5	Phe	ASP	o Tr	p V∂	al	Tyr	ryr	
																		576
		: TCC	e de	C AA	~ ~ ~ ~	* A m/	CAC	GTA	TCC	GTO	: AAI	4 GC	T GA	T A	AC	TCA	CTG	370
239	Gli	. Sei	r Ar	q As	n His	: Ile	His	. Val	. ser	· Va.	L Lys	s Ala	a As	p A	SII	ser	Leu	
																		624
		GTO	C CG.	A GC	o C GGI	A GGC	TGC	TTT	CCG	: GG	A AA'	r GC	C AC	G G ∽ 17	-1	Ara	Ten	0 -
243	Ala	ı Va.	l Ar	g Al	a Gly	Z Gly	су:	s Phe	5 PIC	et;	y Asi	u Al	20		CI.I	27.1 9	Leu	
																		672
246	CGG	3 AG	C GG	C GA	A CG	G AAG	G GG	; CTC	3 AGC	i GA	A CI	A CA	c Ar	ra G	lv	Asr	TGG Trp	
247	Ar	g Se	r Gl	y Gl	u Ar	g Ly:	s G 1.	7 Бе	1 A.r.	3 61	u Le	22	0	, ,	,		Trp	
248	3	21	0				21	0.00	0.00	A CT	а ст	A CC	C AC	G C	CA	GTO	CTG	720
250	GT.	A CT	G GC	C GC	T GA	T GC	A GU	j ((()	J 002	n Va	0 0. 1 Va	1 Pr	o Th	ır F	,r.o	Val	CTG L Leu	
25.	L Va	l Le	u Al	a Al	a As	p All	a Al	3 GT	y 2111	y v	23	5					Leu 240	
252	2 22	5				23	יט דים כיותי	C CA	c co	r rg	C GC	C TC	G T	rc e	TG	GC	r GTG a Val	768
254	4 CT	C TT	C CI	G G₽	IC CG	G GA	r rr	ii Gl	n Ar	а Ат	a Al	a Se	er Pi	ne V	/al	Ala	a Val 5	
25				0.00	24	m 00	c cc	CAA	а ст	G TT	G CT	C AC	CA CO	CC I	rgg	CA'	r CIG s Leu	816
25	8 GA	G AC	C GE	AC CC	باتا داد. محا ب⇔م	ים בי	o ar	a I.v	s Le	u Le	u Le	u Tì	ır P.	ro :	rrp	Hi:	s Leu	
26						c cc	G CC	A GC	e ee	T GO	T CC	A GO	GT G	AC :	TTI	: GC	A CCG a Pro	864
26	2 GT	G TH	ro Go	ای تدر احدا	la Ar	ra Gl	v Pr	o Al	a Pr	o Al	a Pr	co Gi	ly A	sp l	Phe	A.L	a Pro	)
26	4	or ma			ac co	с тт	A CO	T GC	T GO	C GA	AC TO	CG G	rg c	TG (	GCI	r CC	c GGC	912
26	0 GT	וו ט	no A	la A	ra Ai	ea Le	u Ar	g Al	a G1	y As	sp Se	er V	al L	eu .	Ala	a Pr	o Gly	!
26	, Vc	1 1 1	ic A.	a.a. Fi	9	٠,		-										

DATE: 11/29/2000 TIME: 13:33:00 RAW SEQUENCE LISTING PATENT APPLICATION: US/09/711,724

Input Set : A:\Hmv00606.app
Output Set: N:\CRF3\11292000\1711724.raw

268 290 295 300	CAC GAA 960
268 290 270 GGG GAC GCG CTC CAG CCG GCG GCG GCG GTA GCC CGC GTG GCG CGC 270 GGG GAC GCG CTC CAG CCG GCG CGC GTA GCC CGC GTG GCG CGC	ONO OTHE
271 Gly Asp Ala Leu Gin Pro Ald Alg val Ala 1125	320
272 305 274 GCC GTG GGC GTG TTC GCA CCG CTC ACT GCG CAC GGG ACG CTC	Len Val
275 Ala Val Gly Val Phe Ala Pro Leu III Ala HIS GL, INC.	335
276 325 330 CTA CAC ACT CAC	CAG TGG 1056
276 278 AAC GAC GTC CTC GCC TCC TGC TAC GCG GTT CTA GAG AGT CAC	Gln Tro
279 Ash Asp Val Leu Ala Ser Cys 171 And Van Dea 250	)
280 340 282 GCC CAC CGC GCC TTC GCC CCT TTG CGC CTG CTG CAC GCG CTC 282 GCC CAC CGC GCC TTC GCC CCT TTG CGC CTG CTG CAC GCG CTG CTG CTG CAC GCG CTG CTG CTG CTG CTG CTG CTG CTG CT	Gly Ala
283 Ala His Arg Ala Phe Ala Pro Leu Arg Leu His arg	, 02,
284 355 286 CTG CTC CCI GGG GCT GCA GTC CAG CCG-ACT GGC ATG CAT TG	Tyr Ser
287 Leu Leu Pro Gly Gly Ala Val Gin Pro Ini Gry Acc 112	2,2
	1190
290 CGC CTC CTT TAC CGC TTG GCC GAG GAG TTA ATG GGC TG	
290 CGC CTC CTT TAG COS THE ALL Glu Glu Leu Mot Gly 291 Arg Leu Tyr Arg Leu Ala Glu Glu Leu Mot Gly 395	
202 385	
295 (2) INFORMATION FOR SEQ ID NO: 3:	
202 (I) SPONENCE CHARACTERISTICS:	
298 (A) LENGTH: 1056 base pairs	
299 (B) TYPE: nucleic acid	
300 (C) STRANDEDNESS: both	
301 (D) TOPOLOGY: linear	
303 (ii) MOLECULE TYPE: CDNA	
306 (ix) FEATURE:	
307 (A) NAME/KEY: CDS 308 (B) LOCATION: 11008	
and or the TON: SEC TO NO: 3:	
	C ATC TTC 48
313 GAG CGC TTC AAA GAG CTC ACC CGC FAG THE TAN PRO ASP I. 314 Glu Arg Phe Lys Glu Leu Thr Pro Asn Tyr Asn Pro Asp I.	e Ile Phe.
313 " CONTROL OF CONTROL OF CALC CALC ATG ACC C	AG CGC TGC 96
317 AAG GAC GAG GAG AAC ACG GGT GCC GAG GAG AGG Leu Met Thr G 318 Lys Asp Glu Glu Asn Thr Gly Ala Asp Arg Leu Met Thr G	ln Arg Cys
THE TAX WELL COLORED TO THE STO ATO AAC C	AG IGG CCT 144
321 AAG GAC CGT CTG AAC TCA CTG GGC ATO TOTAL ASIG GAC YEAR ASIG GAC CGT CTG AAC TCA CTG GGC ATO TOTAL ASIG GAC	In Trp Pro
OF OF OF OF ACC CAN GGC CGG GAT GAA GAT G	GC CAT CAC 192
	ly His His
325 GGT GTG ARA CTG GGG GTG Thr Glu Gly Arg Asp Glu Asp G	17 1120 111-
326 Gly Val Lys Leu Arg Val Thr Glu Gly Arg Asp Gld Ling 60	-
326 Gly Val Lys Leu Arg Val Thr Gill Gly Arg Ang God 327 50 60 327 50 GAC GAC GGC GGC GGG GTG GAT A	TC ACC ACC 240
326 Gly Val Lys Leu Arg Val Thr Gill Gly Arg Ang God 327 50 60 327 50 GAC GAC GGC GGC GGG GTG GAT A	TC ACC ACC 240
326 Gly Val. Lys Leu Arg Val Thr Gli Gly Arg Asp 60 327 50 55 60 329 TCA GAG GAG TCT TTA CAC TAT GAG GGC CGC GCG GTG GAT A 330 Ser Glu Glu Ser Leu His Tyr Glu Gly Arg Ala Val Asp I	TC ACC ACC 240 le Thr Thr 80
326 Gly Val Lys Leu Arg Val Thr Gli Gly Arg Ala Color 55 327 50 329 TCA GAG GAG TCT TTA CAC TAT GAG GGC CGC GCG GTG GAT A 330 Ser Glu Glu Ser Leu His Tyr Glu Gly Arg Ala Val Asp I 331 65 70 331 65 CTG GGG CGC CGC CGC CGC	TC ACC ACC 240 le Thr Thr 80 TA GCA GTG 288
326 Gly Val Lys Leu Arg Val Thr Gli Gly Arg Ala Color 55 327 50 329 TCA GAG GAG TCT TTA CAC TAT GAG GGC CGC GCG GTG GAT A 330 Ser Glu Glu Ser Leu His Tyr Glu Gly Arg Ala Val Asp I 331 65 70 331 65 CTG GGG CGC CGC CGC CGC	TC ACC ACC 240 le Thr Thr 80 TA GCA GTG 288
326 Gly Val Lys Leu Arg Val Thr Gli Gly Arg Arg Arg 60 327 50 60 329 TCA GAG GAG TCT TTA CAC TAT GAG GGC CGC GCG GTG GAT A 330 Ser Glu Glu Ser Leu His Tyr Glu Gly Arg Ala Val Asp I 331 65 70 333 TCA GAC CGT GAC CGA AAT AAG TAT GGA CTG CTG GCG CGC T 334 Ser Asp Arg Asp Arg Asn Lys Tyr Gly Leu Leu Ala Arg I	TC ACC ACC 240 le Thr Thr 80 TA GCA GTG 288 eu Ala Val 95
326 Gly Val Lys Leu Arg Val Thr Gli Gly Arg Ala Val Asp 327 327 329 TCA GAG GAG TCT TTA CAC TAT GAG GGC CGC GCG GTG GAT A 330 Ser Glu Glu Ser Leu His Tyr Glu Gly Arg Ala Val Asp 3 331 65 70 333 TCA GAC CGT GAC CGA AAT AAG TAT GGA CTG CTG GCG CGC 3 334 Ser Asp Arg Asp Arg Asn Lys Tyr Gly Leu Leu Ala Arg 1	TC ACC ACC 240 le Thr Thr 80 TA GCA GTG 288 eu Ala Val 95



VERIFICATION SUMMARY

PATENT APPLICATION: US/09/711,724

DATE: 11/29/2000 TIME: 13:33:01

Input Set : A:\Hmv00606.app

Output Set: N:\CRF3\11292000\1711724.raw

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L:1434 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:6
L:1434 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:4
L:2148 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:40
L:2154 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:40
L:2154 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:40
L:2166 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:40
L:2172 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:40
L:2198 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:41
L:2201 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:41
L:2204 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:41
L:2205 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:41
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L:2228 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:41
L:2228 M:341 W: (46) "n" or "Xaa" used, for SEO ID#:41